UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,035	12/30/2003	Jaroslaw Sydir	Intel-014PUS	9234

7590 12/20/2006	EXAMINER
Daly, Crowley & Mofford, LLP	
c/o PortfolioIP	WILLIAMS, KENT L
P.O. Box 52050	

ART UNIT	PAPER NUMBER
2112	

Minneapolis, MN 55402

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

		Application No.	Applicant(s)
Office Action Summary		10/749,035	SYDIR ET AL.
		Examiner	**Art Unit**	
		Kent L. Williams	2112	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 January 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 June 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *1 March 2004, 25 June 2004*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "alignment buffer" in communication with the media and switch fabric must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2.   Figure 1 should be designated by a legend such as --Prior Art-- because only

that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

        Figure 1 *is* the Intel™ IPX2855 network processor schematic.

3.   The drawings are objected to because Figure 6 refers to "BL158B," "BL258B,"

etc. on time steps T3-T6, where the '5' should be an 'S' such that "BL158B" is corrected

to "BL1S8B." Also, it *appears to the Examiner* the overall loop arrow of Figure 5 should

point to "End" and not back to "Begin." Corrected drawing sheets in compliance with 37

CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the

application. Any amended replacement drawing sheet should include all of the figures

appearing on the immediate prior version of the sheet, even if only one figure is being

amended. The figure or figure number of an amended drawing should not be labeled as

"amended." If a drawing figure is to be canceled, the appropriate figure must be

removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several

views of the drawings for consistency. Additional replacement sheets may be necessary

to show the renumbering of the remaining figures. Each drawing sheet submitted after

the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are

not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held

in abeyance.

Specification

4.   The disclosure is objected to because of the following informalities: "NPSI

(Network Processing Forum ((NPF)..." should be "NPSI (Network Processing Forum

(NPF)..." to remove the extrenuous parenthesis found on page 2, line 14.

Appropriate correction is required.

Claim Objections

5.   Claims 21 and 25 are objected to because of the following informalities: The

preamble ends with a period, which clearly should be delimited by a colon. Appropriate

correction is required.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
      obviousness or nonobviousness.

7.   Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cruikshank (U.S. Patent No. 6,829,315).

Cruikshank teaches claims 1, 5-12, 18, 21-23 and 25-27 via the use of an

alignment buffer for "Alignment of Parallel Data Channels Using Header Detection and

Signaling. (Title)." Cruikshank defines his invention as: "...The alignment buffer **225**

has a length that is a multiple of a frame length [or a "packet"] for the (M) bit parallel

channels **231**. This buffer length has a wrap-around effect that causes the alignment

buffer **225** to write headers at repeating addresses. Repeating header addresses

reduce the complexity of the buffer logic. (Column 3, lines 61-67)." Further, "A

repeating header address is typically located at the beginning of the memory space and

reduces the complexity of the buffer logic. (Column 5, lines 37-39)." Cruikshank

explicitly teaches the use of his alignment buffer within a *generic* digital data

communications system, which inherently will have a media and switch fabric to send

signals across the network and network processors for encoding (synonymous with

encrypting and ciphering, Encarta® World English Dictionary) and multiplex control; See

Figure 3. The Examiner wishes to take official notice that a processor will have

processing contexts associated therewith (for any given node), and the context will

remain associated with the packets, for any one processing schedule, even when stored

in a buffering device. Figure 3 shows such elements: "media switch fabric" (blocks 302

and 321), "crypto system" (blocks 307 and 324), and alignment buffer (block 325).

Cruikshank intends for his alignment buffering system to be versatile in its use,

suggesting, "various features described [in Cruickshank's patent] could be combined ...

to form multiple variations of the invention. (Column 4, lines 5-10)." The Examiner

interprets Cruikshank's disclosure to suggest his invention be used with *any* data

communications system, whether or not the system performs clear-text operations or

cryptographic/encoding/ciphering operations on the data. Figure 3 teaches the inherent

details of such a system, which are expressed within the last 3 blocks: Writing the

header data at the beginning of the buffer address space (6th block down) that

inherently would write the remaining packet data subsequent to the header, and then

transfer the data to the media and switch fabric's buffering system interface for external

transfer (using its inherent "interface"); See column 4, lines 45-67 and column 5, lines 1-

8 for details. The motivation behind altering the prior-art

cryptographic/encoding/ciphering systems is that those systems are "...[then] prevented

from detecting false headers in the user data and misaligning the parallel channels.

(Column 1, lines 42-44)." A cryptographic system is otherwise known as cryptographic

algorithms programmed within an application specific integrated circuit (ASIC).

However, the system and methods of Cruikshank do not teach the use of multiple

ciphering/encoding/encrypting processors ("units" with supporting structures) within any one device.

Despite, it would have been obvious at the time the invention was made to one having ordinary skill in the art to include additional ciphering/encoding/encrypting processors ("units") within one device because it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

Cruikshank teaches claims 2-4, 13-17, 19-20, 24 and 28: As previously stated, Cruikshank's invention is solely based on its versatility as an enhancement for *any* data communications system and *any* interface which it may implement. Again, this is proven as illustrated in Figure 3, block 315 "Optical system," which teaches the use of the SPI4 interface. As well, Cruikshank does not limit his invention to specific optical communication systems, and therefor teaches the use of other systems and also encompassing NPSI interfaces. However, both SPI4 and NPSI define interfaces for OC-192 signals, which Cruikshank does teach as "The data communications system **350** is configured to operate as follows. The demux **304** receives and processes an OC-192 signal. (Column 4, lines 30-32)." Please see slide 12 of the "Optical Internetworking Forum Report" presentation for further validation. Cruikshank inherently teaches that the end-of-packet transfer would be less than the predetermined size for the protocol used, which is the motivation for his invention: "As a result, the alignment buffer is prevented from detecting false headers in the user data and misaligning the parallel channels. (Column 1, lines 42-44)." This is true despite the byte allocation,

which is determined based on the internal/external protocols and algorithms used within the system and not the system per se. It is also inherent that the alignment buffer would transfer the aligned data to the transfer buffers of the media and switch fabric. The exemplary system for embodying Cruikshank's invention directly corresponds to a router given the functions the system, as a whole, performs. It can also be said that his invention could be embodied alongside a router, thereby saying: "it has a router."

However, Cruikshank only implicitly teaches the use of the interface protocols/systems of the instant application. It would have been obvious at the time the invention was made to one having ordinary skill in the art to include any interface protocol/system (inclusive SPI4 and NPSI) with Cruikshank's invention as his invention is conducive to and intended for any interface.

Claim Rejections - 35 USC § 103

8.   The text of those sections of Title 35, U.S. Code not included in this action can be found supra.

9.   Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cruikshank (U.S. Patent No. 6,829,315) in view of Constant (U.S. Patent No. 4,107,458).

As per claims 1-28 rejections supra: Cruikshank teaches the method and apparatus of a versatile alignment buffer for use in *any* data communication system configuration and *any* media and switch fabric interfaces. Cruikshank does not *explicitly* teach the use of cryptographic processing prior to the alignment buffer.

However, Constant teaches a general-purpose network processor "Cipher

Computer and Cryptographic System. (Title)." Constant describes his invention as:

"The general purpose of this invention is to provide small size low cost apparatus for the

digital implementation of high capacity high speed stream and block cipher devices.

(Column 3, lines 1-5)." Please note that the processing contexts (denoted as 'K'),

variable length "mpacket" possibilities (denoted as 'S' and inclusive of 16 bytes) and

even more versatility of his invention is described throughout the disclosure, but most

notably within lines 33-52 of column 6 and within lines 38-64 of column 4. The

versatility of Constant's invention peritnent to the instant application is summarized as

"The system of the present invention can be operated as either a fixed or programmable

cipher device. (Column 6, lines 33-34)." The Examiner interprets this summary, in

conjunction with the rest of the disclosure, to give enablement for his invention to work

with hardwired circuits ("crypto units"/ASICs), or by per process programmable device

programming to accommodate *any and all* cryptographic algorithm processing. Please

note the disclosure of "...a fully programmable block cipher device of the proposed

standard [...] And, a fixed (non-programmable) device can be obtained by eliminating

the 56 chips needed to implement the ROM **40**. (Column 9, lines 39-46)." In short,

Constant's invention is capable of multiple (more than two) versatile block and stream

ciphering devices ("crypto units") encompassed as a network processor ("has a

router"/"corresponds to a router"): "...applications include and are well suited for the

encryption of signals in digital communications networks and the protection of sensitive

exchanges between central processors and their terminals, for example in banking,

retail point-of-sale, credit verification, personnel files, and medical files, and other

applications. (Column 10, lines 22-29)."

It would have been obvious at the time the invention was made to one having

ordinary skill in the art to use Constant's invention as intended and include the extra

efficiency of Cruikshank's alignment buffer to further enhance the data rate efficiency

between the media and switch fabric used at the time the invention was made.

Constant teaches a very general-purpose ciphering/encrypting/encoding network

processor. Cruikshank teaches a general-purpose alignment buffer and supportive

system for use as a data communication system at the time the instant invention was

made. It is beneficial to implement Constant's invention (aforementioned) using state-

of-the-art means, which is further enhanced using Cruikshanks alignment buffer for use

with state-of-the-art data communication systems.

Double Patenting

10.   The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees.   A nonstatutory
obviousness-type double patenting rejection is appropriate where the conflicting claims
are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated
by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140
F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.
1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422
F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163
USPQ 644 (CCPA 1969).
       A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d)
may be used to overcome an actual or provisional rejection based on a nonstatutory
double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11.   Claims 1-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of copending Application No. 10/749,913. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter of both applications is drawn to a network processor containing crypto units encapsulating cipher cores, processing contexts of the crypto units, buffering mechanisms corresponding to the processing contexts, multiplexer type devices, processing as 16 byte blocks using 64 byte storage allocations, and a network switch and/or router. The following is the claim correspondence from the instant application to the copending application: (cryptographic network processor) claims 1, 5, 7, 8, 9, 18, 21, 23, 25 and 27 to claims 1, 10-12, 18, 20 and 25; (cryptographic processing contexts) claims 6, 10, and 11 to 2, 3, 4, 15, 16, 21, 22, 23, 26, 27 and 28; (byte allocations) claims 15, 16 and 17 to claims 8, 9 and 19; (switch/router and interfaces) claims 2, 3, 4, 12, 13, 14, 19, 20, 24 and 28 to claims 24 and 29.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12.   Claims 1-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of

copending Application No. 10/741,676. Although the conflicting claims are not identical,

they are not patentably distinct from each other because the claimed subject matter of

both applications is drawn to a network processor containing crypto units encapsulating

cipher cores, processing contexts of the crypto units, buffering mechanisms

corresponding to the processing contexts, and a network switch and/or router. The

following is the claim correspondence from the instant application to the copending

application: (cryptographic network processor) claims 1, 5, 7, 8, 9, 18, 21, 23, 25 and 27

to claims 1, 5, 9, 14 and 18; (cryptographic processing contexts) claims 6, 10, and 11 to

2, 6 and 10; (byte allocations) claims 15, 16 and 17 to claims 3, 7, 11 and 16.

This is a <u>provisional</u> obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. U.S. Patent No. 3,627,928 discloses a digital data

telecommunication system utilizing encryption/ciphering ("scrambling"). U.S. Patent No.

6,625,150 discloses a similar system to the instant application (and to Constant's

invention) that, instead, enforces "policies" on incomming data packets of a digital data

communication system. U.S. Patent Application Publication No. 2003/0099254

(Application No. 10/277,613) discloses systemsn and methods for interfacing

asyncronous and syncrounous data media, otherwise known as media and switch fabric

interfacing. U.S. Patent No. 4,661,657 dislcoses specialized methods of transmitting
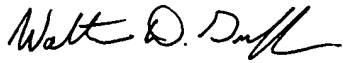
and/or receiving encoded ("ciphered/encrypted") data for high efficiency. U.S. Patent

No. 5,791,545 discloses another improvement of digital data communication systems

for efficient packet switching.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kent L. Williams whose telephone number is 571-272-

1376. The examiner can normally be reached on Mon-Fri 7:00-4:30 with alternate

Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WALTER D. GRIFFIN
SUPERVISORY PATENT EXAMINER

Kent Williams
12/07/2006